by Bob Saydlowski, Jr.

Kahler Human Clock

Those of you who have ever had to play in conjunction with a sequencer know that careful listening is needed to stay in sync with the machine. Kahler's *Human Clock* is a device that makes drum machines, sequencers, etc., follow the tempo of a live drummer, by converting live tempo to a MIDI-clock output. With the *Human Clock,* instead of the sequencer controlling you, *you* control *it,* via MIDI conversations between the *Clock* and the machine.

One way to use the unit is to place a mic' on your bass drum and connect it into the *Clock.* A MIDI cord connects from the *Clock* to the drum machine or sequencer. The *Human Clock* calculates your tempo by reading the "1" counts of the first and second measures you play on the drum. The third time you hit the bass drum, the sequencer will start up. From then on, every time the bass drum is hit, the tempo is recalculated. Your sequencer listens to *you,* and your tempo changes will affect the *Clock* tempo. You can speed up or slow down; it will follow you. The unit can even follow minute tempo changes or complicated drum patterns. Any instrument that puts out a rhythmic analog pulse will work with the *Human Clock.*

The unit is rack-mountable, and has eight controls. "Level" adjusts the input level, and has a corresponding flashing trigger LED. Care must be taken that only one drum triggers the unit, as false or multiple triggers will cause miscalculation of tempo."Mask" blocks out extra input signal and allows you to set how long the *Clock* is "deaf" to more incoming trigger signal. "Sensitivity," in this case, controls the amount of tempo change passed from the *Clock* to your machine before it has to recalculate. "Feel" moves your sequenced material on top of or behind the beat. "Advance" gets rid of MIDI delay that is encountered with most drum machines or sequencers. "Smooth" controls how quickly the *Clock* will adjust to your changes in tempo, as well as setting a "window" for the amount of trigger signal accepted by the *Clock.*

In addition to these knob controls, there are two push buttons. "Reset" clears the *Clock* for setting a new measure length and new tempo calculation. "Restart" enables you to begin at the last tempo given to the *Clock.* The rear of the unit has a 5-pin MIDI out jack, footswitch jacks for remote operation of the "Reset" and

"Restart" functions, plus a Mode switch (which tells the *Clock* what kind of instrument it's listening to—either percussion, or sustained instruments like keyboards, guitar, bass, etc.). There are two 1/4″ input jacks for mic's, trigger bugs, and so on. Since some songs don't have drum intros, or have intros with only one bass drum note per measure, you'd need a way to set tempo silently in live performance. One idea would be to use a silent electronic pad plugged into Input 2 for tapping the tempo setting, while your main sensor (drum mic', etc.) is in Input 1, feeding tempo information to the *Clock* once the song has begun.

But does it really work? I hooked the *Clock* up to a sequencer and triggered it with Simmons pads. After proper adjustment of the controls, I was able to take my playing beyond simple quarter notes or 8th notes, while the *Clock* "heard" me, and kept the sequenced material in time with what *I* was playing. At times, it even felt like I was playing with live musicians, because the sequencer was following *me,* not the reverse.

One thing to beware of is starting songs on say, the 16th note before "1." The *Clock* will read that note as the first note of your measure, and thus, all sequencer material will be one 16th note ahead. But there are creative ways to get around this.

In the studio, the *Human Clock* can sync drum machines and sequencers to existing tracks with no sync tone, or overdub machines to already recorded music, with no worry of tempo deviation between the machine and the music tracks. In fact, it could perhaps make sync tracks obsolete altogether!

Think how much easier Keith Moon's job would have been had he been equipped with the *Human Clock,* instead of having to follow the sequencer in "Baba O'Riley" through headphones blasting his ears off. Any drummer who has to play with sequenced music will benefit by using the *Human Clock.* Previously "robotic"-pulse music can be given a human feel, since your machines are working *with* you. A drummer's job is to lead the band, right? The *Human Clock* lets *you* be in control. Retail price is $650.00.